

American Journal of Physiology: Regulatory, Integrative and Comparative Physiology

VOLUME 21, January-June 1987

Editor: D. J. RAMSAY

Associate Editors:
E. J. BRAUN

W. H. DANTZLER
P. R. McHUGH

M. C. MOORE-EDE
T. N. THRASHER

Editorial Board:

G. A. AHEARN
A. F. BENNETT
P. C. BIE
J. A. BOULANT
G. BRAY
F. R. CALARESU
J. N. CAMERON
I. H. CHAUDRY
H. COLERIDGE
A. W. COWLEY, JR
J. H. CROWE
A. N. EPSTEIN
D. H. EVANS
G. D. FINK
R. H. FREEMAN
W. F. GANONG

G. L. GEBBER
J. P. GILMORE
H. J. GRANGER
P. G. GUYENET
W. G. HALL
J. R. HAZEL
D. C. JACKSON
A. K. JOHNSON
S. B. JONES
M. MENAKER
H. NISHIMURA
H. W. OVERBECK
P. K. T. PANG
J. E. PHILLIPS
M. I. PHILLIPS
J. B. PRITCHARD

H. RAFF
J. L. RENFRO
B. J. ROLLS
J. C. ROSE
W. H. SAWYER
A. SCLAFANI
L. SHARE
G. K. SNYDER
G. N. SOMERO
E. M. STRICKER
C. R. TAYLOR
F. W. TUREK
D. VANDERWEELE
C. E. WOOD
S. C. WOOD
I. H. ZUCKER

Publications Committee

P. C. JOHNSON, *Chairman*
J. S. COOK
W. F. GANONG
L. R. JOHNSON
J. McE. MARSHALL

S. R. GEIGER
*Publications Manager and
Executive Editor*

B. B. RAUNER
Production Manager

A. KARIDIS
R. WOLF
Copy Editors

Published monthly by
THE AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike, Bethesda, MD 20814

Copyright © 1987 by the American Physiological Society. Printed in the United States of America by Waverly Press, Inc., Baltimore, MD 21202. The code at the bottom of the first page of an article indicates the copyright owner's consent that copies of an article may be made beyond that permitted by sections 107 and 108 of the U.S. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 27 Congress St., Salem, MA 01970.

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

F. M. Abboud	J. N. Crawley	R. J. Jarrett	E. Quillen
M. Acara	M. F. Dallman	O. A. Johns	E. R. Raman
H. E. Albers	P. R. Dallman	N. W. Kasting	D. C. Randall
R. Anderson	J. Dark	S. E. Kaufman	W. C. Randall
A. Aperia	I. V. Deaciuc	G. J. Kenagy	I. A. Reid
P. S. Aronson	M. deBurgh Daly	T. S. Kilduff	J. E. Remmers
D. Baker	W. M. Deen	H. R. Kissileff	L. P. Renaud
M. A. Baker	D. R. DiBona	H. Kontos	E. M. Renkin
K. M. Baldwin	J. R. Dietz	P. I. Korner	G. S. Richardson
P. L. Ballard	B. Dunning	S. Kraly	J. R. Roberts
B. M. Barnes	F. L. Eldridge	S. F. Kraly	D. Robertshaw
J. G. Baust	W. C. Engeland	M. Kruesi	L. C. Rome
D. J. Baylink	F. H. Epstein	E. LaKatta	J. C. Romero
P. H. Baylis	S. M. Factor	J. R. Ledsome	B. I. Roots
S. L. Bealer	J. N. Fain	S. F. Leibowitz	M. J. Rosner
W. Beltz	G. A. Farkas	G. Leng	N. J. Rothwell
T. Bennett	J. A. Faulkner	G. T. Lesser	N. Rowland
R. Berger	M. R. Fedde	E. G. Levin	K. Sagawa
M. J. Berridge	M. E. Feder	A. Lewy	W. K. Samson
C. A. Beuchat	J. D. Fernstrom	H. Lillywhite	E. Satinoff
D. D. Bickle	G. Feuerstein	S. L. Lindstedt	K. Sato
V. S. Bishop	C. Fielding	J. M. Lipton	C. Saudek
C. M. Blatteis	D. Figlewicz	L. D. Longo	A. Scarpa
J. Bligh	J. P. Filkins	D. J. Loskutoff	P. G. Schmid
A. S. Blix	J. T. Fitzsimons	R. J. Lowy	W. D. Schmid
J. R. Bloedel	J. F. Foscett	T. Maack	L. P. Schramm
A. A. Borbely	R. A. Frizzell	R. E. MacMillen	W. J. Schwartz
Z. A. Boulos	C. A. Fuller	J. Magnuson	J. R. Seckl
R. A. Brace	R. V. Gallo	R. L. Malvin	R. E. Shade
T. J. Bradley	R. Garcia	T. H. Maren	T. J. Shuttleworth
P. H. Brand	L. Gareth	R. M. McAllen	B. D. Sidell
N. Brautbar	R. Gertsberger	R. B. McCall	E. Simon
J. R. Brobeck	J. R. Gillespie	M. J. McKinley	J. B. Simpson
M. Brody	S. F. Glotzbach	C. H. Metzler	G. P. Smith
G. Brooks	K. L. Goetz	I. H. Mills	D. F. Speck
V. Brooks	B. D. Goldman	D. S. Minors	K. M. Spyer
A. Brown	D. L. Goldstein	R. Miselis	W. N. Stainsby
M. R. Brown	P. D. Gollnick	R. E. Mistlberger	J. N. Stallone
J. P. Bruno	D. Gordon	R. A. Mitchell	W. J. Stekiel
T. Bucher	J. G. Granneman	T. Moerland	F. K. Stephan
J. C. Buckingham	J. F. Green	T. H. Moran	G. A. Stephens
R. B. Bunag	G. Grodsky	P. J. Morgane	R. B. Stephenson
W. Burggren	I. Gross	L. P. Morin	D. L. Stetson
T. F. Burks	A. C. Guyton	P. R. Morrison	E. D. Stevens
J. C. Burnett	F. J. Haddy	M. A. Moskowitz	J. T. Stitt
L. E. Burnett	B. Halloran	J. E. Muller	M. J. Stock
L. A. Campfield	D. Halm	X. J. Musacchia	J. A. Stolwijk
B. Cannon	S. J. Hanning	D. J. Naismith	D. Stribling
M. Cantin	G. Heldmaier	B. H. Natelson	M. Thames
J. J. Cech, Jr.	H. C. Heller	D. O. Nelson	P. Trayhurn
P. Chan	J. H. Henriksen	G. A. Nickols	R. Traystman
C. Cheung	M. A. Heymann	D. Novin	B. Tufts
J. Y. Cheung	J. Himms-Hagen	J. W. Olney	G. R. Ulsch
J. Ciriello	J. Hirsch	K. Olsson	L. D. Van de Kar
J. R. Claybaugh	J. Hoffman	A. I. Pack	W. L. Veale
M. C. Cogan	J. W. Holaday	T. V. Peterson	J. G. Verbalis
G. Collier	B. J. Holub	Q. Pittman	C. E. Wade
C. E. Constantino	S. R. Hootman	C. Polosa	W. G. Walker
K. G. Cornish	B. A. Horwitz	R. Preston	M. Walser
T. C. Cox	T. H. Hostetter	R. W. Putnam	L. C. H. Wang
J. T. Coyle	H. S. Iwamoto	G. A. Quamme	L. C. Weaver

R. C. Webb
I. M. Weiner
D. B. West
N. H. West

S. J. Wickler
J. H. Widdicombe
J. X. Wilson
N. Wilson

A. T. Winfree
J. B. Wirth
R. Wolfe
S. Woods

S. H. Wright
A. Zanchetti
B. G. Zimmerman

American Journal of Physiology: Regulatory, Integrative and Comparative Physiology

No. 1. JANUARY 1987

Natriuresis induced by localized perfusion within the third cerebral ventricle of sheep <i>P. S. Cox, D. A. Denton, D. R. Mouw, and E. Tarjan</i>	R1
Peripheral and brain tissue catecholamine content in intact and anti-NGF-treated fetal sheep <i>J. A. Schuijers, D. W. Walker, C. A. Browne, and G. D. Thorburn</i>	R7
Localization of efferent function in the dorsal motor nucleus of the vagus <i>W. B. Loughton and T. L. Powley</i>	R13
Pressoreceptor modulation of renal but not splenic sympathetic reflexes <i>J. C. Tobey and L. C. Weaver</i>	R26
CRF initiates biological actions within the brain that are observed in response to stress <i>H. J. Lenz, A. Raedler, H. Greten, and M. R. Brown</i>	R34
Na ⁺ -H ⁺ exchange and Na ⁺ -dependent transport systems in streptozotocin diabetic rat kidneys <i>S. El-Seifi, J. M. Freiberg, J. Kinsella, L. Cheng, and B. Sacktor</i>	R40
Stress-induced blood pressure responses in SHR: effect of dietary calcium <i>D. C. Hatton, P. E. Huie, M. S. Muntzel, J. A. Metz, and D. A. McCarron</i>	R48
Phase resetting and dysrhythmic responses of the respiratory oscillator <i>D. Paydarfar and F. L. Eldridge</i>	R55
Effect on parathyroid hormone on transport by toad and turtle bladder <i>S. Sabatini and N. A. Kurtzman</i>	R63
Autoregulation of renal blood flow and glomerular filtration rate in the pregnant rabbit <i>L. L. Woods, H. L. Mizelle, and J. E. Hall</i>	R69
Central angiotensin II and PGE ₂ act independently to increase blood pressure in conscious sheep <i>B. A. Breuhaus and J. E. Chimoskey</i>	R73
Valine entry into rat brain after diet-induced changes in plasma amino acids <i>J. K. Tewws, J. Greenwood, O. E. Pratt, and A. E. Harper</i>	R78
Sulfate transport by chick renal tubule brush-border and basolateral membranes <i>J. L. Renfro, N. B. Clark, R. E. Metts, and M. A. Lynch</i>	R85
Fetal responses to altered maternal oxygenation in rhesus monkey <i>B. T. Jackson, G. J. Piasecki, and M. J. Novy</i>	R94
Abnormal blood pressure recovery during ganglion blockade in diabetic rats <i>R. A. Hebden, T. Bennett, and S. M. Gardiner</i>	R102
Factors from paraventricular nucleus mediating adrenocorticotropin release in cats <i>D. E. Carlson and D. S. Gann</i>	R109
Vasopressin responses to asphyxia and hemorrhage in newborn pigs <i>C. W. Leffler, D. W. Busija, D. P. Brooks, J. T. Crofton, L. Share, D. G. Beasley, and A. M. Fletcher</i>	R122
Cardiovascular effect of V ₁ vasopressinergic blockade during acute hypercapnia in conscious rats <i>B. R. Walker</i>	R127
Potassium-induced relaxation in vascular smooth muscle of ground squirrels and rats <i>C. T. Harker and R. C. Webb</i>	R134
Puberty in female rats: relative effect of exercise and food restriction <i>F. H. Bronson</i>	R140
Augmented pressor response to vasopressin in awake dogs after cardiac denervation <i>B. C. Wang, G. F. Ginter, and K. L. Goetz</i>	R145
Organic cation secretion by <i>Cancer borealis</i> urinary bladder <i>D. S. Miller and C. W. Holliday</i>	R153
Glucagon stimulation of brown adipose tissue growth and thermogenesis <i>C. J. Billington, T. J. Bartness, J. Briggs, A. S. Levine, and J. E. Morley</i>	R160

Morphology and development of an apoeccrine sweat gland in human axillae <i>K. Sato, R. Leidal, and F. Sato</i>	R166
Sweat secretion by human axillary apoeccrine sweat gland in vitro <i>K. Sato and F. Sato</i>	R181
Increased synthesis and release of atrial peptide during DOCA escape in conscious dogs <i>C. H. Metzler, D. G. Gardner, L. C. Keil, J. D. Baxter, and D. J. Ramsay</i>	R188

No. 2. FEBRUARY 1987

INVITED OPINION

Interaction between myocardial depressant factor and vasoactive mediators with ischemia and shock <i>A. M. Lefer</i>	R193
---	------

GRAVITATIONAL PHYSIOLOGY

Introduction <i>X. J. Musacchia</i>	R207
Changes in pituitary growth hormone cells prepared from rats flown on Spacelab 3 <i>R. Grindeland, W. C. Hymer, M. Farrington, T. Fast, C. Hayes, K. Motter, L. Patil, and M. Vasques</i>	R209
Hematological measurements in rats flown on Spacelab shuttle, SL-3 <i>R. D. Lange, R. B. Andrews, L. A. Gibson, C. C. Congdon, P. Wright, C. D. R. Dunn, and J. B. Jones</i>	R216
Hepatic function in rats after spaceflight: effects on lipids, glycogen, and enzymes <i>A. H. Merrill, Jr., E. Wang, D. P. Jones, and J. L. Hargrove</i>	R222
Cardiac muscle ultrastructure and cyclic AMP reactions to altered gravity conditions <i>M. I. Mednieks, A. S. Fine, J. Oyama, and D. E. Philpott</i>	R227
Salivary gland ultrastructure and cyclic AMP-dependent reactions in Spacelab 3 rats <i>M. I. Mednieks and A. R. Hand</i>	R233
Fragility and composition of growing rat bone after one week in spaceflight <i>P. Patterson-Buckendahl, S. B. Arnaud, G. L. Mechanic, R. B. Martin, R. E. Grindeland, and C. E. Cann</i>	R240
Nuclear morphometric analysis of osteoblast precursor cells in periodontal ligament, SL-3 rats <i>W. E. Roberts, P. J. Fielder, L. M. L. Rosenoer, A. C. Maese, M. R. Gonsalves, and E. R. Morey</i>	R247
Histomorphometric analysis of rat skeleton following spaceflight <i>T. J. Wronski, E. R. Morey-Holton, S. B. Doty, A. C. Maese, and C. C. Walsh</i>	R252
Phase setting of circadian locomotor rhythm of infant rats <i>K.-I. Honma, S. Honma, T. Shirakawa, and T. Hiroshige</i>	R256
Restricted daily feeding during nursing period resets circadian locomotor rhythm of infant rats <i>S. Honma, K.-I. Honma, and T. Hiroshige</i>	R262
Role of adrenergic-dependent H ⁺ release from red cells in acidosis induced by hypoxia in trout <i>B. Fievet, R. Motais, and S. Thomas</i>	R269
Time course of radiolabeled 2-deoxy-D-glucose 6-phosphate turnover in cerebral cortex of goats <i>D. A. Pelligrino, D. J. Miletich, and R. F. Albrecht</i>	R276
Sex-related differences in fever development of rats <i>N. Murakami and T. Ono</i>	R284
Suppressed serum prolactin in sinoaortic-denervated rats <i>N. Alexander, S. Melmed, and M. Morris</i>	R290
Sinoaortic denervation in the nonhuman primate <i>V. S. Bishop, R. E. Shade, J. R. Haywood, and C. Hamm</i>	R294

Age-related changes in circannual rhythms of lymphocyte blastogenic responses in mice <i>M. A. Brock</i>	R299
Responses to converting-enzyme inhibition and hemorrhage in newborn lambs and adult sheep <i>J. C. Rose, S. M. Block, K. Flowe, M. Morris, S. South, D. K. Sundberg, and C. Zimmerman</i>	R306
Cardiovascular and endocrine response to hemorrhage after α_1 -blockade in lambs and ewes <i>S. M. Block, J. C. Rose, J. M. Ernest, K. Flowe, S. South, and C. Zimmerman</i>	R314
Effect of permanent access to operant heating on energy balance of growing pigs <i>A. H. Swiergiel</i>	R320
Effect of sympathetic sensitization of baroreceptors on renal nerve activity <i>J. L. Seagard, F. A. Hopp, and J. P. Kampine</i>	R328
Cardiorenal-endocrine dynamics during and following volume expansion <i>R. S. Zimmerman, B. S. Edwards, T. R. Schwab, D. M. Heublein, and J. C. Burnett, Jr.</i>	R336
Does myoglobin contribute significantly to diffusion of oxygen in red skeletal muscle? <i>D. G. Covell and J. A. Jacquez</i>	R341
Acid-base balance in ducks (<i>Anas platyrhynchos</i>) during involuntary submergence <i>M. Shimizu and D. R. Jones</i>	R348
Proglumide, a cholecystokinin antagonist, increases gastric emptying in rats <i>G. Shillabeer and J. S. Davison</i>	R353
Contraction of major artery segments of rat by fish neuropeptide urotensin II <i>H. Itoh, Y. Itoh, J. Rivier, and K. Lederis</i>	R361
Mechanosensitive afferents of femoral-saphenous vein <i>P. W. Davenport and F. J. Thompson</i>	R367
Effects of temperature on contractile properties of skinned muscle fibers from three toad species <i>I. A. Johnston and T. T. Gleeson</i>	R371
A possible physiological role of milk epidermal growth factor in neonatal eyelid opening <i>O. Tsutsumi, A. Tsutsumi, and T. Oka</i>	R376
Amniotic fluid volume regulation: basal volumes and responses to fluid infusion or withdrawal in sheep <i>S. Tomoda, R. A. Brace, and L. D. Longo</i>	R380
Comparison of effects of ATP-MgCl ₂ and adenosine-MgCl ₂ on renal function following ischemia <i>B. E. Sumpio, M. J. Hull, A. E. Baue, and I. H. Chaudry</i>	R388
Pulmonary depressor reflex elicited by capsaicin in conscious intact and lung-denervated dogs <i>P. S. Clifford, J. T. Litzow, and R. L. Coon</i>	R394
Level of alimantation and line of breeding on oxygen uptake by ovine jejunal mucosa <i>R. E. Rompala, D. E. Johnson, W. V. Rumpler, H. W. Phetteplace, and C. F. Parker</i>	R398
Diet, lighting, and food intake affect norepinephrine turnover in dietary obesity <i>T. Yoshida, J. S. Fislser, M. Fukushima, G. A. Bray, and R. A. Schemmel</i>	R402
Separation of captopril effects on salt and water intake by subfornical organ lesions <i>R. L. Thunhorst, D. A. Fitts, and J. B. Simpson</i>	R409

SPECIAL COMMUNICATIONS

In vivo metabolic activity of hamster suprachiasmatic nuclei: use of anesthesia <i>W. J. Schwartz</i>	R419
--	------

RAPID COMMUNICATIONS

Atrial natriuretic peptide blocks renin response to renal hypotension <i>D. A. Scheuer, T. N. Thrasher, E. W. Quillen, Jr., C. H. Metzler, and D. J. Ramsay</i>	R423
--	------

LETTERS TO THE EDITOR

Fenfluramine and gastric emptying
M. Horowitz; P. Robinson

R433

No. 3. MARCH 1987

CENTENNIAL MESSAGE

Wither or whither?

A. P. Fishman

R435

The American Physiological Society in its centenary year

H. E. Morgan

R437

Seasonal, sexual, and individual variation in endurance and activity metabolism in lizards

T. Garland, Jr., and P. L. Else

R439

Effects of endurance training and captivity on activity metabolism of lizards

T. Garland, Jr., P. L. Else, A. J. Hulbert, and P. Tap

R450

Distribution of antithrombin III in rabbits: role of host and protein

E. Regoeczi

R457

Sweating responses and body temperatures during nocturnal sleep in humans

J. C. Sagot, C. Amoros, V. Candas, and J. P. Libert

R462

Resistance to diet-induced obesity: food intake, pancreatic sympathetic tone, and insulin

B. E. Levin, J. Triscari, S. Hogan, and A. C. Sullivan

R471

Ammonium ion substitutes for K⁺ in ATP-dependent Na⁺ transport by basolateral membrane vesicles

D. W. Towle and T. Hølleland

R479

Effects of dopamine in renal vascular bed of fetal, newborn, and adult sheep

K. T. Nakamura, R. A. Felder, P. A. Jose, and J. E. Robillard

R490

Control of atrial natriuretic factor release from a rat heart-lung preparation

J. R. Dietz

R498

Atrial stretch-induced diuresis in Brattleboro rats

S. Kaufman and J. Stelfox

R503

Prevention of genetic *fa/fa* obesity with an ephedrine-methylxanthines thermogenic mixture

A. G. Dulloo and D. S. Miller

R507

Inhibition of renal nerve sympathetic activity by spinal stimulation in rat

L. P. Schramm and R. H. Livingstone

R514

Angiotensin II does not alter ACTH responses to hypoglycemia in conscious dogs

M. Keller-Wood, B. Kimura, and M. I. Phillips

R526

Dynamics of insulin resistance in denervated slow and fast muscles in vivo

J. Turinsky

R531

Effects of hypercapnia on variability of normal respiratory behavior in awake cats

P. C. Szlyk and D. B. Jennings

R538

Prolonged alterations in plasma cortisol circadian rhythms following trauma in baboons

T. K. McIntosh

R548

Hypoxic moderation of systemic hypertension in the spontaneously hypertensive rat

W. N. Henley and A. Tucker

R554

Attenuated sodium appetite in response to sodium deficiency in Fischer-344 rats

E. E. Midkiff, D. A. Fitts, J. B. Simpson, and I. L. Bernstein

R562

Intestinal glucose transport and salinity adaptation in a euryhaline teleost

S. J. Reshkin and G. A. Ahearn

R567

Basolateral glucose transport by intestine of teleost, *Oreochromis mossambicus*

S. J. Reshkin and G. A. Ahearn

R579

Glucose turnover in 48-hour-fasted running rats <i>B. Sonne, K. J. Mikines, and H. Galbo</i>	R587
Acute central effects of L-glutamate in pentobarbital-anesthetized dogs <i>J. E. Chelly, M.-F. Doursout, and J. P. Buckley</i>	R594
Effect of neuropeptide Y on ingestive behaviors in the rat <i>J. E. Morley, A. S. Levine, B. A. Gosnell, J. Kneip, and M. Grace</i>	R599
Cardioinhibitory effect of atrial peptide in conscious rats <i>D. E. Allen and M. Gellai</i>	R610
Unaltered regulatory thermogenic response to dietary signals in exercise-trained rats <i>J. Arnold and D. Richard</i>	R617

RAPID COMMUNICATIONS

Does a decrease in cortisol negative feedback efficacy precede ovine parturition? <i>C. E. Wood</i>	R624
Aortic baroreceptor reflexes are mediated by NMDA receptors in caudal ventrolateral medulla <i>F. J. Gordon</i>	R628

ANNOUNCEMENTS

R634

No. 4. APRIL 1987

INVITED OPINION

Glucocorticoid inhibition of neurohypophyseal vasopressin secretion <i>H. Raff</i>	R635
Forebrain contribution to sympathetic nerve discharge in anesthetized cats <i>Z.-S. Huang, G. L. Gebber, S. M. Barman, and K. J. Varner</i>	R645
Hormonal regulation of hepatic glycogenolysis in the carp, <i>Cyprinus carpio</i> <i>P. A. Janssens and P. Lowrey</i>	R653
Influence of spinal and hypothalamic warming on metabolism and sleep in pigeons <i>R. Graf, H. C. Heller, S. Sakaguchi, and S. Krishna</i>	R661
Does vasopressin-induced vasoconstriction persist during prolonged infusion in dogs? <i>J.-F. Liard</i>	R668
Effect of endotoxic shock on skeletal muscle intracellular electrolytes and amino acid transport <i>M. D. Karlstad and M. M. Sayeed</i>	R674
Renal brush-border $\text{Na}^+\text{-H}^+$ exchange activity in the aging rat <i>J. L. Kinsella and B. Sacktor</i>	R681
High-NaCl diet reduces cardiac vagal afferent nerve response to volume expansion <i>G. F. DiBona and L. L. Sawin</i>	R687
Guinea pig lung development: antioxidant enzymes and premature survival in high O_2 <i>I. R. S. Sosenko and L. Frank</i>	R693
Arterial baroreceptor and vagal inputs to sympathoexcitatory neurons in rat medulla <i>M.-K. Sun and P. G. Guyenet</i>	R699
Normalization of hemodynamic parameters: application to vascular resistance and impedance <i>Z. Liu and F. C. P. Yin</i>	R710
Quantitation of phosphorus excretion in sheep by compartmental analysis <i>K. M. Schneider, R. C. Boston, and D. D. Leaver</i>	R720
Continuous resetting of the human carotid baroreceptor-cardiac reflex <i>G. A. Kasting, D. L. Eckberg, J. M. Fritsch, and C. L. Birkett</i>	R732
Enhancement of cold-stimulated thermogenesis in the corpulent rat (LA/N cp) by aminophylline <i>T. F. Lee, L. C. H. Wang, and J. C. Russell</i>	R737
Negative-feedback inhibition of fetal ACTH secretion by maternal cortisol <i>C. E. Wood</i>	R743

Vasopressin release in response to nausea-producing agents and cholecystokinin in monkeys <i>J. G. Verbalis, D. W. Richardson, and E. M. Stricker</i>	R749
Pressor action of intravenous angiotensin II reduces drinking response in rats <i>M. M. Robinson and M. D. Evered</i>	R754
Chemical microstimulation of the septal area lowers arterial pressure in the rat <i>A. J. Gelsema and F. R. Calaresu</i>	R760
Correlation between osmoregulation and cell volume regulation <i>M. A. Lang</i>	R768
Yolk platelet degradation in preemergence <i>Artemia</i> embryos: response to protons in vivo and in vitro <i>P. J. Utterback and S. C. Hand</i>	R774
Thoracic duct lymph flow during head-out water immersion in conscious dogs <i>K. Miki, M. M. Pazik, E. Krasney, S. K. Hong, and J. A. Krasney</i>	R782
Properties enhancing aerobic capacity of calling muscles in gray tree frogs <i>Hyla versicolor</i> <i>R. L. Marsh and T. L. Taigen</i>	R786

SPECIAL COMMUNICATIONS

Total body electrical conductivity measurements: effects of body composition and geometry <i>M. L. Fiorotto, W. J. Cochran, R. C. Funk, H.-P. Sheng, and W. J. Klish</i>	R794
--	------

RAPID COMMUNICATIONS

Effect of stimulation of afferent renal nerves on plasma levels of vasopressin <i>M. M. Caverson and J. Ciriello</i>	R801
---	------

ANNOUNCEMENTS

R808

No. 5. MAY 1987

INVITED OPINION

Ion transport in circulatory and/or septic shock <i>M. M. Sayeed</i>	R809
---	------

Thermogenin amount and activity in hamster brown fat mitochondria: effect of cold acclimation <i>U. Sundin, G. Moore, J. Nedergaard, and B. Cannon</i>	R822
Renal function and sodium balance in conscious Dahl S and R rats <i>R. J. Roman and J. L. Osborn</i>	R833
Homeostatic control of manganese excretion in the neonatal rat <i>N. Ballatori, E. Miles, and T. W. Clarkson</i>	R842
Brain ECF pH and central chemical control of ventilation during anoxia in turtles <i>D. G. Davies and J. A. Sexton</i>	R848
Angiotensin II infusion increases thoracic duct lymph flow in chronically catheterized sheep <i>G. J. Valenzuela, C. W. Hewitt, and A. D. Graham</i>	R853
Proton-stimulated Cl-HCO ₃ antiport by basolateral membrane vesicles of lobster hepatopancreas <i>G. A. Ahearn, M. L. Grover, R. T. Tsuji, and L. P. Clay</i>	R859
Aging changes in renal handling of <i>p</i> -aminohippurate <i>C. L. Wabner and T. S. Chen</i>	R871
Elevated levels of atrial natriuretic peptide during aldosterone escape <i>J. P. Granger, J. C. Burnett, Jr., J. C. Romero, T. J. Oppenorth, J. Salazar, and M. Joyce</i>	R878
Effect of immobilization on collagen synthesis in rat skeletal muscles <i>J. Savolainen, K. Väänänen, V. Vihko, J. Puranen, and T. E. S. Takala</i>	R883

Neurohypophyseal secretion in hypovolemic rats: inverse relation to sodium appetite <i>E. M. Stricker, J. A. Hosutt, and J. G. Verbalis</i>	R889
Polyunsaturated lipid diet lengthens torpor and reduces body temperature in a hibernator <i>F. Geiser and G. J. Kenagy</i>	R897
Acute effects of dietary protein on food intake, tissue amino acids, and brain serotonin <i>J. C. Peters and A. E. Harper</i>	R902
Atrial natriuretic factor decreases whole-body capillary absorption in rats <i>N. C. Trippodo and R. W. Barbee</i>	R915
Role of atrial natriuretic factor in the natriuresis of acute volume expansion <i>A. A. Khraibi, J. P. Granger, J. C. Burnett, Jr., K. R. Walker, and F. G. Knox</i>	R921
Cardiac control of salt appetite <i>E. Toth, J. Stelfox, and S. Kaufman</i>	R925
Matching of vertebrate cardiac energy demand to energy metabolism <i>W. R. Driedzic, B. D. Sidell, D. Stowe, and R. Branscombe</i>	R930
Ingestive behavior of rats with ibotenic acid lesions of the dorsomedial hypothalamus <i>L. L. Bellinger</i>	R938
Bicuculline blocks an inhibitory baroreflex input to supraoptic vasopressin neurons <i>J. H. Jhamandas and L. P. Renaud</i>	R947
Beta-endorphin, ACTH, and cortisol response to hemorrhage in conscious pigs <i>J. D. O'Benar, J. P. Hannon, J. L. Peterson, and C. A. Bossone</i>	R953
Quaternary ammonium sulfanilamide: a membrane-impermeant carbonic anhydrase inhibitor <i>R. P. Henry</i>	R959
Membrane-associated carbonic anhydrase in gills of the blue crab, <i>Callinectes sapidus</i> <i>R. P. Henry</i>	R966
Extracellular fluid and plasma volumes during water immersion in nephrectomized dogs <i>K. Miki, G. Hajduczuk, S. K. Hong, and J. A. Krasney</i>	R972
Renal nerves and renal responses to head-up tilt in dogs <i>T. V. Peterson, N. L. Hurst, and J. A. Richardson</i>	R979
Thermogenic activity and capacity of brown fat in fasted and refed golden hamsters <i>I. Levin and P. Trayhurn</i>	R987
Intravenous insulin infusions in rats decrease gustatory-evoked responses to sugars <i>B. K. Giza and T. R. Scott</i>	R994

SPECIAL COMMUNICATIONS

Determination of plasma volume in swine by the enzyme-dilution method <i>M. A. Holmes and R. B. Weiskopf</i>	R1003
A rapid bioassay for quantification of atrial natriuretic polypeptides <i>K. Matsui, T. Kimura, K. Ota, M. Shoji, M. Inoue, K. Iitake, and K. Yoshinaga</i>	R1009

RAPID COMMUNICATIONS

Infusion of CCK-8 into hepatic-portal vein fails to reduce food intake in rats <i>D. Greenberg, G. P. Smith, and J. Gibbs</i>	R1015
Renal nerves mediate blunted natriuresis to atrial natriuretic peptide in cirrhotic rats <i>J. P. Koepke, S. Jones, and G. F. DiBona</i>	R1019

No. 6. JUNE 1987

Rats with regenerating adrenals are more hypertensive in the morning than afternoon <i>R. Foulkes, S. M. Gardiner, and T. Bennett</i>	R1025
Ventral medullary surface inputs to cervical sympathetic respiratory oscillations <i>E. van Lunteren, J. Mitra, N. R. Prabhakar, M. A. Haxhiu, and N. S. Cherniack</i>	R1032
Activation of neurosecretory cells by osmotic stimulation of anteroventral third ventricle <i>K. Honda, H. Negoro, T. Higuchi, and Y. Tadokoro</i>	R1039

Cold-induced changes in Ca^{2+} transport in duckling skeletal muscle mitochondria <i>H. Barré and J. Nedergaard</i>	R1046
Natriuretic response to homologous heart extract in aglomerular toadfish <i>J. Lee and R. L. Malvin</i>	R1055
Changes in physiological properties of rabbit oviduct by ovarian steroids <i>M. Nozaki and Y. Ito</i>	R1059
Characteristics of lung mechanoreceptors in spotted gar, <i>Lepisosteus oculatus</i> <i>N. J. Smatresk and S. Q. Azizi</i>	R1066
Myocardial adaptation to endurance exercise training in diabetic rats <i>D. J. Paulson, S. J. Kopp, D. G. Peace, and J. P. Tow</i>	R1073
Role of local neurons in cerebrocortical vasodilation elicited from cerebellum <i>C. Iadecola, S. P. Arneric, H. D. Baker, L. W. Tucker, and D. J. Reis</i>	R1082
α -Adrenergic receptor subtypes in the cerebral circulation of newborn piglets <i>L. C. Wagerle, and M. Delivoria-Papadopoulos</i>	R1092
Nonisotonicity of simian eccrine primary sweat induced in vitro <i>K. Sato and F. Sato</i>	R1099
Satiety effects of intragastric meals containing triglycerides with different chain lengths <i>C. A. Maggio and H. S. Koopmans</i>	R1106
Lymphatic and vascular responses to fluid infusion in castrated and noncastrated sheep <i>G. J. Valenzuela, R. A. Brace, and L. D. Longo</i>	R1114
Partial purification and characterization of cysteine proteinases in eccrine sweat <i>H. Yokozeiki, T. Hibino, and K. Sato</i>	R1119
Relationship between preferred ambient temperature and autonomic thermoregulatory function in rat <i>C. J. Gordon</i>	R1130
Acute suppression of plasma vasopressin and thirst after drinking in hypernatremic humans <i>C. J. Thompson, J. M. Burd, and P. H. Baylis</i>	R1138
Adrenal gland denervation and diving in ducks <i>H. J. Mangalam, D. R. Jones, and A. M. A. Lacombe</i>	R1143
Pulsatile release of antipyretic neuropeptide α -MSH from septum of rabbit during fever <i>R. C. Bell and J. M. Lipton</i>	R1152
Expiratory effects of cerebellar stimulation in developing opossum <i>J. P. Farber</i>	R1158
Role for the median preoptic nucleus in centrally evoked pressor responses <i>T. P. O'Neill and M. J. Brody</i>	R1165

MODELING METHODOLOGY FORUM

Model of plasma calcium regulation: system oscillations induced by growth <i>S. Hurwitz, S. Fishman, and H. Talpaz</i>	R1173
Solvent flow in osmosis and hydraulics: network thermodynamics and representation by bond graphs <i>H. Atlan and J. Thoma</i>	R1182

<i>Subject Index to Volume 21</i>	R1195
<i>Author Index to Volume 21</i>	R1205

CORRIGENDA

Volume 252, May 1987
Volume 21, May 1987

Page R883: Jukka Savolainen, Kalervo Väänänen, Veikko Vihko, Jaakko Puranen and Timo E. S. Takala. "Effect of immobilization on collagen synthesis in rat skeletal muscles." Page R883: second column, ninth line should read "in types I and III collagen (23)". Page R886: Table 2 title should read "Effect of 3 wk cast immobilization on PH and GGT activities and HYP content on muscle." Page R888: Reference 17 should read "edited by J. B. Weiss and M. I. V. Jayson."

